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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/044,154 | 01/10/2002 | Evren Eryurek | 30203/37762 | 1097 |
| 4743 | 7590 | 09/14/2004 | EXAMINER | |
| MARSHALL, GERSTEIN & BORUN LLP 6300 SEARS TOWER 233 S. WACKER DRIVE CHICAGO, IL 60606 | | | LE, JOHN H | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2863 | |

DATE MAILED: 09/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/044,154

Applicant(s)

ERYUREK, EVREN

Examiner

John H Le

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19, 21-34, 37-41 and 44-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12, 18, 19, 21-25, 28, 31-34, 37, 41, 44 and 48-53 is/are rejected.
- 7) ☒ Claim(s) 10, 11, 13-17, 26, 27, 29, 30, 38-40 and 45-47 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 08/04/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Response to Amendment

1. This office action is in response to applicant's response received on 08/05/2004.

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-9, 12, 21-25, 28, 37, and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Dhindsa et al. (USP 5,846,056).

Regarding claims 1 and 21, 37, and 44, Dhindsa et al. teach a monitoring system for use in estimating the existence of cavitation in a device (condition of pump) (e.g. Col.2, line 48-58, Col.3, lines 18-29), the monitoring system comprising: a processor (228); a memory (Col.8, lines 38-41) that stores a characteristic curve (pressure curve, Col.7, lines 41-46, pressure curve includes characteristics, Col.15, line 37) for the device; a collection routine (monitoring computer) adapted to be executed on the processor (228) to collect one or more operating parameters associated with the device during operation of the device (e.g. Col.8, lines 15-41); and a monitoring routine (monitoring computer) adapted to be executed on the processor (228) that uses the one or more operating parameters (e.g. Col.7, lines 47-51, Col.8, lines 15-41) and the characteristic curve (pressure curve) (e.g. Col.7, lines 41-46) to estimate the presence

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of cavitation (condition of pump) within the device (e.g. Col.2, line 48-58, Col.3, lines 18-29, Col.8, lines 42-53, Col.11, lines 18-24), automatically detecting (a pump are detected by the microcontroller 220) the presence of cavitation within device (certain abnormal operating conditions relating to a pump, Col.8, lines 44-49, wherein the condition in the pump known as cavitation, Col.2, lines 54-58) based on the one or more collected operating parameter (monitoring computer store data and display data) and the characteristic curve (monitoring computer store data and display data, pressure curve)(Col.8, lines 15-41).

Regarding claims 2 and 22, Dhindsa et al. teach the memory also stores a model (programmed instructions) associated with the device (e.g. Col.8, lines 33-41) and wherein the monitoring routine (monitoring computer) is adapted to use the model (programmed instructions) to estimate a further operating parameter associated with the device (condition of the pumps) (e.g. Col.8, lines 12-28, Col.10, lines 24-28, Col.11, lines 18-24).

Regarding claims 3 and 23, Dhindsa et al. teach the monitoring routine (monitoring computer) is further adapted to use the estimated further operating parameter (e.g. Col.7, lines 47-51, Col.8, lines 15-41) and the characteristic curve (pressure curve) (e.g. Col.7, lines 41-46) for the device to estimate the presence of cavitation within the device (condition of pump) (e.g. Col.2, line 48-58, Col.3, lines 18-29, Col.8, lines 42-53, Col.11, lines 18-24).

Regarding claims 4 and 24, Dhindsa et al. teach the one or more operating parameters includes a pressure indication (points pressure) associated with the device

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(e.g. Col.7, lines 1-18) and wherein the collection routine (monitoring computer) is adapted to collect the pressure indication (e.g. Col.7, lines 41-46).

Regarding claim 5, Dhindsa et al. disclose the operating parameters include a suction pressure indication (Col.5, lines 32-62).

Regarding claims 6 and 25, Dhindsa et al. teach the one or more operating parameters includes a fluid flow indication associated with the device and wherein the collection routine is adapted to collect the fluid flow indication (e.g. Col.5, lines 20-23, lines 35-39, 54-60).

Regarding claim 7, Dhindsa et al. disclose the operating parameters include a suction pressure indication and a suction fluid flow indication (Col.5, lines 32-62).

Regarding claim 8, Dhindsa et al. disclose the one or more operating parameters includes a pressure indication and a fluid flow indication associated with the device and wherein the collection routine is adapted to collect the pressure and fluid flow indications (e.g. Col.5, lines 20-23, lines 32-62).

Regarding claim 9, Dhindsa et al. disclose the operating parameters include a suction pressure indication and a suction fluid flow indication (Col.5, lines 32-62).

Regarding claims 12 and 28, Dhindsa et al. disclose the monitoring routine (programmed instructions) is adapted to alert a user (activates alarms) when the monitoring routine estimates the presence of cavitation within the device (the values of certain system parameters fall outside their respective predetermined norms) (Col.3, lines 44-49).

Regarding claim 48, Dhindsa et al. disclose the device including a pump mechanism (Abstract).

Regarding claim 50, Dhindsa et al. disclose the device including a pressure sensor (Col.4, lines 54-60)

4. Claims 18-19, 31-32, 41, 49, and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dhindsa et al. (USP 5,846,056) in view of Unsworth et al. (USP 6,757,665).

Regarding claims 18-19, 31-32, 41, and 53, Dhindsa et al. fail to disclose the monitoring system includes an expert engine, wherein the expert engine is a neural network.

Unsworth et al. teach the monitoring system includes an expert engine, wherein the expert engine is a neural network (Col.11, line 36-Col.12, line 26).

Regarding 49, Unsworth et al. disclose the pump mechanism includes an impeller (Col.10, lines 14-27).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an expert engine, wherein the expert engine is a neural network as taught by Unsworth et al. in a reciprocating pump system of Dhindsa et al. for the purpose of providing a detection of pump cavitation (Unsworth et al., Col.10, lines 43-65).

5. Claims 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dhindsa et al. (USP 5,846,056) in view of Unsworth et al. (USP 6,757,665) as applied to claim 31 above, and further in view of Dorchak (USP 5,161,110).

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Regarding claims 33-34, the combination of Dhindsa et al. and Unsworth et al. discussed supra, disclose the claimed invention the expert engine includes step using a trending analysis, a fractal analysis.

Dorchak disclose the expert engine includes step using a trending analysis (Col.3, lines 64-67), a fractal analysis (Fig.2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an expert engine, wherein the expert engine is a neural network as taught by Dorchak in a reciprocating pump system of Dhindsa et al. in view of Unsworth et al. for the purpose of providing a hierarchical process control system, which substantially eliminates or reduces disadvantages and problems associated with prior control systems (Dorchak, Col.2, lines 20-24).

Allowable Subject Matter

6. Claims 10-11, 13-17, 26-27, 29-30, 38-40, 45-47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments filed 08/05/2004 have been fully considered but they are not persuasive.

-Applicant argues that the prior art fails to teach or suggest "use of characteristic curve to estimate the presence of cavitation".

Dhindsa et al. discloses use the characteristic curve (pressure curve) (e.g. Col.7, lines 41-46) to estimate the presence of cavitation (condition of pump) within the device (e.g. Col.2, line 48-58, Col.3, lines 18-29, Col.8, lines 42-53, Col.11, lines 18-24), automatically detecting (a pump are detected by the microcontroller 220) the presence of cavitation within device (certain abnormal operating conditions relating to a pump, Col.8, lines 44-49, wherein the condition in the pump known as cavitation, Col.2, lines 54-58) based on the one or more collected operating parameter (monitoring computer store data and display data) and the characteristic curve (monitoring computer store data and display data, pressure curve)(Col.8, lines 15-41).

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John H Le whose telephone number is 571-272-2275. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E Barlow can be reached on 571-272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

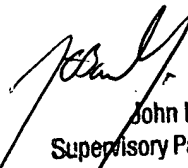
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John H. Le

Patent Examiner-Group 2863

August 25, 2004


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